

Partnerships for Innovation (PFI)

PROGRAM SOLICITATION

NSF 10-581

REPLACES DOCUMENT(S):

NSF 08-583



National Science Foundation

Directorate for Engineering
Industrial Innovation and Partnerships

Letter of Intent Due Date(s) (required) (due by 5 p.m. proposer's local time):

October 01, 2010

October 1, Annually Thereafter

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

December 04, 2010

December 4, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

This document replaces [NSF 08-583](#).

The composition of the institutional base of the partnerships and other program requirements underwent substantial change. This solicitation should be reviewed in its entirety as essentially all sections underwent revision. Proposers should carefully read the following sections:

- Eligibility Information
- Mandatory Letter of Intent
- Supplementary Documents
- Additional Review Criteria

Proposals not meeting the requirements of this Solicitation may be returned without review.

Please be advised that the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) includes revised guidelines to implement the mentoring provisions of the America COMPETES Act (ACA) (Pub. L. No. 110-69, Aug. 9, 2007.) As specified in the ACA, each proposal that requests funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals. Proposals that do not comply with this requirement will be returned without review (see the PAPP Guide Part I: *Grant Proposal Guide* Chapter II for further information about the implementation of this new requirement).

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Partnerships for Innovation (PFI)

Synopsis of Program:

One of the general goals of the Partnerships for Innovation Program (PFI) is to stimulate the transformation of knowledge created by the research and education enterprise into innovations that create new wealth; build strong local, regional, and national economies; and improve the national well-being. Aligned with this goal, the PFI competition for FY 2011 funds will provide support for innovation capacity building to sustained, dynamic interactive knowledge-enhancing partnership groups composed of academic researchers and small business (as defined by the Small Business Administration (SBA)) practitioners focused on intense exploration, re-definition, and creation of novel platforms for translating research and moving it towards impact. **The basic organizational core of each proposed knowledge-enhancing partnership group must be composed of an academic lead institution and, at a minimum, two small businesses.** These newly created partnership groups will provide small group process models for innovation, their hallmark being a collaboration in which research and its translation paths are shaped and expanded from both the research and the business perspectives. While the center-piece of this group is academe and small business, large businesses and non-profits may participate in this core knowledge-enhancement partnership unit, which in turn may be embedded in the broader network of a PFI partnership.

The purpose of these knowledge-enhancing partnership groups is to develop researchers more agile in adapting their research for use in new applications and to increase the potential viability of existing small businesses to leverage this capacity. In particular, these interactive relationships will increase the researchers' effectiveness to respond to and anticipate the constraints imposed by the operational limitations on translation of the research. They will improve the business practitioners' capability to develop products that will have potentially strong market demand in the future.

The ideal project would consist of exploration, re-definition, and creation of a novel platform, that is, one that can be applied to many markets and problems/opportunities (multi-product or process platforms). Some examples of platforms include the following: laser-based technologies that have multiple applications in product verticals; software algorithms that can be customized in different applications to provide multiple functionalities; nano-structured materials that may have multiple applications, environmental remediation technologies; re-manufacturing technologies--a more sustainable approach than conventional manufacturing involving a process of returning used products to at least original performance--that can be applied to diverse industries; energy conservation or storage technologies; innovation through design or education in innovation with widespread impact; and personalized medicine/genetic testing. Partnerships that support areas pertaining to energy, sustainability, or education of next generation entrepreneurs are particularly desirable. Some examples of the kinds of activities that could be engaged in by the knowledge-enhancing partner companies working with academe are feasibility research, alpha-prototype development, design, and product conceptualization.

This competition will support 9 to 11 promising partnerships between academic researchers and small business practitioners that engage in the important process of dynamic knowledge enhancement to build capacity to generate and sustain innovation. Partnerships may also include other academic institutions, other private sector organizations (such as large businesses and not-for-profit organizations) and state/local/federal government.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Sara B. Nerlove, PFI Program Director (Primary Contact), Partnerships for Innovation Program, Rm 579, telephone: (703) 292-7077, fax: (703) 292-9057, email: snerlove@nsf.gov
- Donald Senich, Section Head, Academic Programs, Directorate for Engineering; Division of Industrial Innovation and Partnerships (IIP), telephone: (703) 292-7082, email: dsenich@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.041 --- Engineering

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 9 to 11

Anticipated Funding Amount: \$7,000,000 subject to the availability of funds and quality of proposals. Awards may be up to \$600,000 with an award duration of two or three years.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- **Accredited Degree Granting Institutions:** US universities and two- and four-year colleges (including community and technical colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions. The lead (submitting) organization must be an academic institution.

At least two or more existing small businesses (as defined by the Small Business Administration (SBA)) must participate in the PFI proposal.

PI Limit:

One of the Co-PIs must be a Senior Administrator (at the level of dean or above in the reporting structure, for example, Dean, Vice President for Academic Research, Provost, etc.), who has a demonstrated commitment to knowledge transfer of university research. The senior administrator must have an active role that is explicitly described along with the specification of a time commitment on the project.

The PI cannot be a PI on a PFI award that will be active after June 1, 2011.

Limit on Number of Proposals per Organization:

Academic institutions are limited to participation in only one proposal.

Limit on Number of Proposals per PI: 1

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further

information.

- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
 - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
 - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required under this solicitation.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. proposer's local time):
 - October 01, 2010
 - October 1, Annually Thereafter
- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):
 - December 04, 2010
 - December 4, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Standard NSF award conditions apply.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

Research, education, and innovation enterprises are increasingly interconnected and global. Global collaboration among scientists, engineers, educators, industry, and governments can speed the process of innovation--the transformation of scientific and technological advances into new products, processes, systems, and services--and, in its wake, can produce new jobs, create wealth, and improve the standard of living and quality of life worldwide. Innovation has created significant tangible benefits to society, including improved healthcare, transportation, and computer-communications capacities.

Within the United States, innovation in science and technology has been the dominant source of productivity gains and new enterprises for over half a century. Much of the capacity for innovation in the U.S. has resulted from federal funding of research. Since its inception, the National Science Foundation (NSF) has enabled innovation through its support of discovery and the production of a scientifically and technologically knowledgeable workforce. More recently, NSF has established centers and developed other partnership programs that facilitate knowledge and technology transfer to the private sector. Since businesses and industries today are more dependent on research and technology advances and since the product development cycle in all industry sectors is more rapid than before, NSF's traditional roles are closer to and more relevant to economic development than at any time in our past.

Partnerships are an important means for developing an innovation capability that links new knowledge to economic growth and other societal benefits. What is explicitly being supported in the Partnerships for Innovation program under this Solicitation is a formalization of a link in the chain of value creation that has received little support; namely, an early stage which connects the research enterprise more dynamically to the world of small business. The purpose of this link is to build the capacity of all parties involved so that they can more effectively move discovery research to novel technologies and market-accepted innovation.

II. PROGRAM DESCRIPTION

The Partnerships for Innovation (PFI) program is intended to forge connections between new knowledge created in the discovery process and learning and innovation. The PFI program defines innovation as the transformation of knowledge into products, processes, systems, and services that are novel and of economic value to society.

One of the general goals of the Partnerships for Innovation Program (PFI) is to stimulate the transformation of knowledge created by the research and education enterprise into innovations that create new wealth; build strong local, regional, and national economies; and improve the national well-being. Aligned with this goal, the PFI competition for FY 2011 funds will provide support for innovation capacity building to sustained, dynamic interactive knowledge enhancing partnership groups composed of academic researchers and small business (as defined by the Small Business Administration (SBA)) practitioners focused on intense exploration, re-definition, and creation of novel platforms for translating research and moving it towards impact. **The basic organizational core of each proposed knowledge-enhancing partnership group must be composed of an academic lead institution and, at a minimum, two small businesses.** These newly created partnership groups will provide small group process models for innovation, their hallmark being a collaboration in which research and its translation paths are shaped and expanded from both the research and the business perspectives. While the center-piece of this group is academe and small business, large businesses and non-profits may participate in this core knowledge-enhancement partnership unit, which in turn may be embedded in the broader network of a PFI partnership.

The purpose of these knowledge-enhancing partnership groups is to develop researchers more agile in adapting their research for use in new applications and to increase the potential viability of existing small businesses to leverage this capacity. In particular, these interactive relationships will increase the researchers' effectiveness to respond to and anticipate the constraints imposed by the operational limitations of translation of the research. They will improve the business practitioners' capability to develop products that will have potential strong market demand in the future. They will prepare small businesses for the future, to more effectively span the stage from novel technologies to market accepted innovation, i.e., cross the "valley of death."

Each partnership project will be composed of a knowledge-enhancing small group consisting, at a minimum, of the lead institution and two or more existing small businesses (referred to as knowledge-enhancement partner companies). The substantive core of the project focuses on exploration, re-definition, and creation of a novel platform, that is, one that can be applied to many markets and problems/opportunities (multi-product or process platform technologies). It should not be research that will lead to a product or process that has a single application (or an application that is represented by a single product or process). The breadth as well as the depth of the opportunity is essential so that the knowledge-enhancement partner companies can truly collaborate and all can benefit. Some examples of platforms include the following: laser-based technologies that have multiple applications in product verticals; software algorithms that can be customized in different applications to provide multiple functionalities; nano-structured materials that may have multiple applications; environmental remediation technologies, re-manufacturing technologies--a more sustainable approach than conventional manufacturing which involves a process of returning used products to at least original performance--that can be applied to diverse industries; energy conservation or storage technologies; innovation through design or education in innovation with widespread impact; and personalized medicine/genetic testing. Partnerships that support areas pertaining to energy, sustainability, or education of next generation entrepreneurs are particularly desirable. Some examples of the kinds of activities that could be engaged in by the knowledge-enhancing partner companies working with academe are feasibility research, alpha-prototype development, design, and product conceptualization.

The partnership is not limited to the lead academic institution and the knowledge-enhancing partner companies. The choice as to the number and the types of any additional partners is left to the discretion of the applicants. Since the inception of the program, PFI partners have been selected in the interest of assembling a set of players which could be organized and managed to best pursue the PFI project goals. The range of possible partners is meant to be broad. Additional partners can include other academic institutions (from which one or more members of the project research team could be drawn); public sector institutions; and other private sector institutions, such as large for-profit businesses as well as not-for private sector organizations. Partnerships that include state and local government entities are encouraged as are partnerships that include international partners which advance the goals of the partnership project.

As in the past, this PFI competition supports the planning and early implementation of new activities designed to sustain innovation in the long-term, but this competition focuses on an early stage in the process. This emphasis is intended to build innovation capacity and the ultimately the potential for attaining of a new level of economic impact.

In this context, it is important to emphasize that the nature of agreements between the academic institution and the small businesses needs to be flexible to accommodate different possibilities that may not be anticipated in advance. Agreements in this context also have to be revisited as part of the process of this interactive relationship. It can also be perceived that some projects may have open innovation models. It is difficult to place a value on innovation capacity building in a partnership. Incentives for the researcher/team as well as protection for the business are important to consider. An appropriate risk management strategy dealing with (eventual) IP sharing and ownership should be developed for the project from both the research and business perspectives. The relationship developed is important because in the end trust is essential to the productivity of these knowledge-enhancement partnerships units. Expected accomplishments to come out of the proposed activity are as follows:

- Identification of value dimensions for the customer and how the proposed applications are progressing in producing value along these dimensions
- Measurement of progress in creating a prototype for customer feedback
- Understanding of market barriers that research might enable the firm to overcome
- Uncovering, enumerating, and analyzing new insights vs. confirming what was known before the knowledge enhancing partnership interaction. Will these insights give the research any advantage in the marketplace?
- Collaborative progress in each platform or on technological dimensions. What are different new emerging concepts coming out of this platform that are valuable?
- Connection of the progress to economic impact factors--such as energy or sustainability dimensions-- that are of major concern (mega trends) to industry

III. AWARD INFORMATION

NSF will make 9-11 awards totaling approximately \$7,000,000 subject to the availability of funds and quality of proposals. Awards may be up to \$600,000 with award durations of two or three years. *The total budget request to NSF for the lead (submitting) institution and all other organizations participating in the project cannot exceed \$600,000.*

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- **Accredited Degree Granting Institutions:** US universities and two- and four-year colleges (including community and technical colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions. The lead (submitting) organization must be an academic institution.

At least two or more existing small businesses (as defined by the Small Business Administration (SBA)) must participate in the PFI proposal.

PI Limit:

One of the Co-PIs must be a Senior Administrator (at the level of dean or above in the reporting structure, for example, Dean, Vice President for Academic Research, Provost, etc.), who has a demonstrated commitment to knowledge transfer of university research. The senior administrator must have an active role that is explicitly described along with the specification of a time commitment on the project.

The PI cannot be a PI on a PFI award that will be active after June 1, 2011.

Limit on Number of Proposals per Organization:

Academic institutions are limited to participation in only one proposal.

Limit on Number of Proposals per PI: 1

Additional Eligibility Info:

The proposed partnership project is to create an dynamic interactive relationship between an academic institution (the lead institution) and two or more small businesses (referred to as knowledge-enhancement partner companies) in order to augment innovation capacity; that is, in order to be able to develop products that will have strong market demand. Small businesses can be of three types:

- Type I: Independents, companies with no previous connection to the lead academic institution;
- Type II: Spin-offs and/or
- Type III: Hybrids, where equity and responsibility are shared with researchers, but where there is also a strong 3rd party entrepreneurial presence.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent (required):

Submission of a Letter of Intent (LOI) from the lead institution is mandatory. Letters of intent are to be submitted via FastLane which is available at <http://fastlane.nsf.gov/>. The LOI allows NSF to examine the proposals with respect to the eligibility requirements, to identify correctable issues, and to categorize proposals in order to prepare for the proposal review process.

Enter the requested core Letter of Intent information as prompted by FastLane. Additionally, complete these data fields for the LOI:

- *Platform* (250 char. limit) - description of platform and some major potential application areas and identification of researcher(s), who will be constitute the research portion of the knowledge-enhancement unit of the partnership
- *Knowledge-Enhancement Partners* (250 char. limit)- For each knowledge-enhancement unit partner company, designate type (Type I, II, or III), name of company, its location, description of mission/technology foci, number of employees, and founding date
- *Measurement* (250 char. limit) - briefly address the issue of the development of the characterization and measurement of progress and enumerate the baseline data to be gathered to enable assessment of future impact.

Note that LOIs are restricted as to fields and number of characters that can be entered in FastLane. Thus, a comprehensive, standalone version of the LOI must also be submitted to the Program Director of the PFI Program via e-mail: snerlove@nsf.gov by the LOI deadline date and time. The following information must be included in the email and should ultimately be included in some form or another in the proposal:

Platform

- Project title & description of platform, identification of researcher(s) (title, department) who will constitute the research portion of the knowledge-enhancement unit of the partnership, and submitting department(s)/organizational unit(s).
- Designation of senior administrator(s), role and time commitment (note it is optional as to whether the time is supported with grant funds, but regardless the time commitment must ultimately appear in the proposal budget and/or the budget explanation and in the current and pending support statement)
- Potential importance of the proposed platform to U.S. competitiveness,

Knowledge-Enhancement Partners and Other Partners

- **Knowledge-Enhancement Partners**--for each knowledge-enhancement partner company, designate type (Type I, II, or III), name of company; its location, description of its mission/technology foci, number of employees, and founding date. In the full LOI, include this information for any private sector partners that are not small for-profit businesses but which are to be considered part of the core knowledge-enhancement partnership unit.
- **Other Academic institutional Partner(s)**--list & briefly describe the role of each on the project. Include each institution's name and state.
- **Other Private Sector Partner(s)**--list & briefly describe the role of each on the project. Include each organization's name, and state; it is understood that there might be some modification in this list of partners by the time of submission.
- **Other Public Sector Partner(s)**--list & briefly describe role of each on the project. Include each organization's name, and state; it is understood that there might be some modification in this list of partners by the time of submission.
- **Other Partners**--list & briefly describe the role of each on the project. Include each organization's name and state; it is understood that there might be some modification in this list of partners by the time of submission

Measurement

- Briefly address issue of the development of the characterization and measurement of progress and enumerate the baseline data to be gathered to enable assessment of future impact.

Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through FastLane in response to this Program Solicitation please note the conditions outlined below:

- Sponsored Projects Office (SPO) Submission is required when submitting Letters of Intent
- A Minimum of 0 and Maximum of 4 Other Senior Project Personnel are allowed
- A Minimum of 0 and Maximum of 4 Other Participating Organizations are allowed
- Platform is required when submitting Letters of Intent
- Knowledge Enhancement Partners is required when submitting Letters of Intent
- Measurement is required when submitting Letters of Intent
- Submission of multiple Letters of Intent is not allowed

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

Proposal Content

The following instructions supplement or deviate from the GPG and NSF Grants.gov Application Guide Guidelines.

The solicitation number (see the front cover of this document) must be placed on the NSF Cover Sheet. (If submitting via Grants.gov, the program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page.) Failure to submit this information may lead to a return without review.

Project Summary (one-page limit)

The Project Summary should be written in the third person and shall begin as follows: "This Partnerships for Innovation (PFI) project....". Provide the title of the proposed Partnership for Innovation, the name of the PI, and the lead institution. Open with a succinct statement of what the proposal is about.

A. The summary must clearly address in separate statements (within the one-page limit):

- (1) the intellectual merit of the proposed activity
- (2) broader impacts resulting from the proposed activity.

B. The summary should list the partners, placing them into categories

- (1) the names of the knowledge-enhancement unit partner companies followed by
- (2) other partner organizations that are members of the PFI partnership-in labeled categories, alphabetically within the category.

The Project Description (15-page limit)

The project description must include these subsections.

Narrative Description, Including Information About the Senior Institutional Administrator Serving as Co-PI The narrative must describe the platform and how it provides a strong base that can contribute to realization of the goal of building the innovation capacity of the dynamic knowledge-enhancement partner unit so as to

- Increase the researchers' effectiveness to respond to and anticipate the constraints imposed by the operational limitations of translation of the research and
- Improve the business practitioners' future capability of developing products that will have strong market demand.

The proposal should establish the following:

- 1) Platform to be explored, re-defined, and created is of potential importance to the enhancement of U.S. economic competitiveness.
- 2) Choice of each participating knowledge-enhancement partner company (two or more of which must small businesses) that is appropriate to the capabilities envisioned for the platform and that makes sense in terms of each company's mission and expertise; collectively, these knowledge-enhancement partner companies should occupy distinct parts of the technology space so as to be unlikely to be direct competitors of each other.
- 3) A well developed plan/strategy for mutual learning between researchers and practitioners, including an explicit entrepreneurial mentoring component. Students are to be included in the mix.
- 4) A schema to characterize and measure progress using metrics, whenever possible, and explicitly identified expertise among the PI and Co-PIs or elsewhere on the project team to ensure that this is an integral part of the project. Also, enumerate the baseline data to be gathered to enable assessment of future impact.
- 5) The lead institution will provide incentives and rewards for the support of this kind of work
- 6) There is an opportunity for the leadership of the PFI project to serve as role models for knowledge transfer in the lead institution and beyond.
- 7) The ways in which the proposed activity provides a context to further enhance the lead institution's innovation capacity via integrating and marshalling extant innovation- related elements across the institution to support the activity.
- 8) The university managers of IP need to be cognizant and supportive of this work.

Management Plan: Partnership Roles, Responsibilities, Resources, and Commitments. Provide a narrative description of the coordination of the respective roles, responsibilities, and resources of the knowledge-enhancement partnership unit and the other core partners and how their efforts will be coordinated to meet the goals of the project. Specifically, describe the technical and human resources available for this project and where they are situated within the overall partnership.

- Technical resources, such as a prototyping capability as a resource (either inside or outside of the small business)
- Human resources, such as individuals with entrepreneurial track records (who are inside and/or outside of the small business); for example, Entrepreneurs in Residence (EIRs), but EIRs who would be in a position to join the management team of the small business, as appropriate)

Supplementary Documents

The following information must be provided as supplementary documents in the following order:

1. *List of Partnership Organizations and Personnel (five page limit).* Provide a list of all partnership organizations subdivided into the following categories: knowledge enhancement-partnership unit followed by the other core partners: academic institutions, private sector organizations, public sector organizations: including state and local governments, government laboratories; and others. List 1) the members of the knowledge-enhancement partnership unit; 2) then list by category and alphabetized with each category the other participating organizations. Provide a list of each organization's senior personnel participating in the PFI Partnership. For each of the personnel representing academic institutions, include the department(s) and/or school(s) with which the individual is associated.
2. *Letters of Commitment.* Letters of commitment from each of the partner organizations for the proposed effort must be provided on the organization's letter head, signed by the appropriate institutional or organizational representative. These must be scanned into the Supplementary Docs module in FastLane or Grants.gov.
3. *Collaboration Plans and Risk Management Strategy.* Provide plans delineating mechanisms designed to foster collaboration among all parties in the enterprise to enable the sharing of resources, experiences, expertise and ideas, and to stimulate the creation of new paradigms. An appropriate risk management strategy for the project should be developed from both the research and business perspectives.
4. *Letter of Support (limit of five letters).* Letters of support (to be distinguished from letters of commitment). Be selective--

- content should provide meaningful data from stakeholders (that are not partners) regarding the potential successful outcomes of the project. These must be scanned into the Supplementary Docs module in FastLane or Grants.gov.
5. *Organizational/Role Diagram (optional)*. This is an organizational chart that depicts the roles to be played by each participating organization. This section gives the proposer the opportunity to provide a schematic depicting the anatomy of the partnership.
 6. *Suggested Reviewers (optional)*. Provide a list of appropriate or inappropriate reviewers for the proposed Partnership for Innovation (use FastLane module).
 7. *Postdoctoral Researcher Mentoring Plan*. Proposals that request funding for postdoctoral researchers must include a one-page mentoring plan in accordance with guidance in the GPG.

B. Budgetary Information

Cost Sharing: Cost sharing is not required under this solicitation.

Other Budgetary Limitations:

Budget Limitations: Proposed Partnerships may request from NSF, total budgets of up to \$600,000 for award durations of two or three years. NSF will not provide salary support for personnel employed by Federal Agencies or Federally Funded Research and Development Centers.

Travel: Costs for travel for the PI for one trip per year to report on progress or participate in PFI workshops should be included in the requested budget and spelled out explicitly in the budget justification. Additional travel costs for a partner, a student, and/or other participants on the project to travel for the same or similar purposes; in particular travel costs should be anticipated so as to include the PFI Grantees Workshop, anticipated to occur bi-annually (once every 2 years).

C. Due Dates

- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. proposer's local time):

October 01, 2010

October 1, Annually Thereafter

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

December 04, 2010

December 4, Annually Thereafter

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: <https://www.fastlane.nsf.gov/fastlane.jsp>.

- **For Proposals Submitted Via Grants.gov:**

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www07.grants.gov/applicants/app_help_reso.jsp. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal

preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>.

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

Additional Solicitation Specific Review Criteria

Reviewers will be asked to extensively review the documented qualifications of the PIs, Co-PIs, and other personnel on the PFI project team. In particular, they will be asked to evaluate evidence of the PI's understanding of the research and ability to ultimately lead the transfer of results to market and societal impact in the proposed domain. The PI should have demonstrated and verifiable experience with one or more spinoff firms from an academic environment or translational research collaboration with small business partners; he/she or have mentors that are committed to enable such translational success.

Other additional review criteria are as follows:

- Potential of the proposed PFI Partnership to foster and sustain this type of innovation-building capacity in the long term (hint: relates to incentives, rewards, opportunity for project leadership to serve as role models, ways in which other innovation-related elements in the institution are integrated into the project, nature of the student participation, endorsement by the University IP managers, etc.)
- Potential importance of the project to the enhancement of U.S. competitiveness
- Degree to which the proposed activity will stimulate new innovation opportunities for the partner organizations, especially for the core knowledge-enhancement partnership unit
- Quality of the plan/strategy for mutual learning between researchers and practitioners
- Quality of the schema to characterize and measure progress and clarity of the information on the baseline data to be collected
- If the project involves international collaboration, the value of the proposed international activities in advancing the goals of the PFI program

In making the final award decisions, NSF will also consider the following:

- Geographic distribution and diversity of academic institutions involved in the partnership
- Distribution of technology or industry sectors served

NSF staff also will give careful consideration to the following in making funding decisions:

Integration of Research and Education

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the *NSF Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational), publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

NSF also requires PFI awardees to collect and submit data to NSF secure databases. Data may also be collected from all participating organizations, not just the PFI awardees. Data collected may be both survey data and annual report data. Survey data may also be collected post the completion of the grant. Data could include indicators of progress, outcome, and impact. NSF will provide data definitions and guidelines for assembling and submitting the data.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Sara B. Nerlove, PFI Program Director (Primary Contact), Partnerships for Innovation Program, Rm 579, telephone: (703) 292-7077, fax: (703) 292-9057, email: snerlove@nsf.gov
- Donald Senich, Section Head, Academic Programs, Directorate for Engineering; Division of Industrial Innovation and Partnerships (IIP), telephone: (703) 292-7082, email: dsenich@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the [NSF web site](#).

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at <http://www.grants.gov>.

Partnership for Innovation Awards

A complete list of all current Partnerships for Innovation awards, with project descriptions is available at http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5261. This list is not to be interpreted to cover the entire range of activities or goals that can be proposed. It is important to pay attention to the particular focus of this PFI Solicitation.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
 - Send an e-mail to: nsfpubs@nsf.gov
 - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, [NSF-50](#), "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and [NSF-51](#), "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Division of Administrative Services
National Science Foundation
Arlington, VA 22230

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